

(12) **UK Patent Application** (19) **GB** (11) **2 191 441** (13) **A**

(43) Application published 16 Dec 1987

(21) Application No **8614365**

(22) Date of filing **12 Jun 1986**

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B28B 1/14 7/24

(52) Domestic classification (Edition I):

**B5A 1R150 1R455 2E1B 2E1D T3P
U1S 1700 B5A**

(56) Documents cited

GB 0598689 GB 0216705 GB 0181783

(58) Field of search

**B5A
Selected US specifications from IPC sub-class B28B**

(54) **Apparatus for casting paving blocks in situ**

(57) A settable material such as cement, concrete or the like is applied to a surface to create in situ on that surface a paved area having a plurality of shaped paving segments each spaced at its upper surface from neighbouring segments by a channel whose area increases progressively from its base and into which mortar may subsequently be applied. The apparatus used comprises a hollow frame (1) defined by elongate boundary members (2) and divided into discrete sections by at least one elongate member (3) of a shape which in cross-section increases progressively from the base to the top thereof. The arrangement is such that settable material can be cast into the frame sections with the frame located on a ground surface to create in situ a paved area.

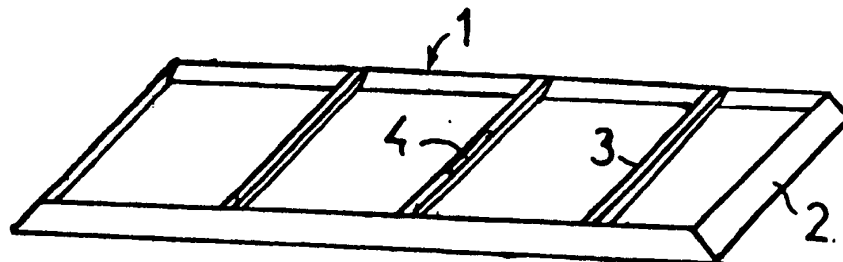


FIG. 3

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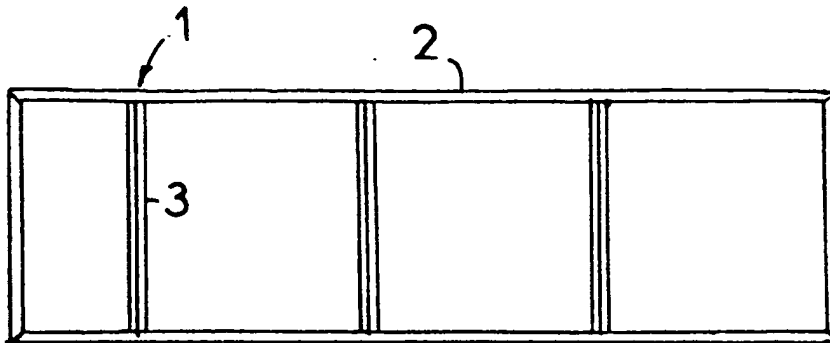


FIG. 1

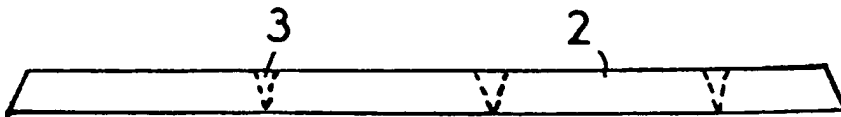


FIG. 2

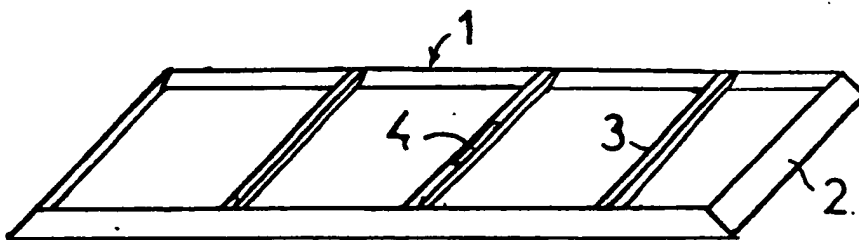


FIG. 3

SPECIFICATION

Apparatus for casting paving blocks in situ

5 This invention relates to apparatus for and a method of applying a settable material such as cement or concrete to a surface.

Moulds for casting individual paving blocks are known. Such moulds include a base and
10 integral side walls which confine the cast cement or concrete. Once set, the cast blocks are removed from the moulds and can subsequently be laid onto a prepared flat ground surface to create a paved area such as a
15 patio. Whereas the cast paving blocks are satisfactory in that they are of relatively consistent shape and thickness, it is always necessary firstly to provide a relatively level surface if an aesthetically pleasing result is to
20 be achieved.

The present invention sets out to provide apparatus for casting simultaneously several paving blocks of the like in situ onto a surface which does not necessarily require the same
25 degree of preparation as has hitherto been the case.

According to the present invention in one aspect, there is provided apparatus for applying a settable material such as cement, concrete or the like to a surface to create in situ
30 on that surface a paved area consisting of a plurality of shaped segments each spaced on at least its upper surface from neighbouring segments by a channel whose area increases progressively from the base to the top thereof
35 and into which mortar may subsequently be applied, the apparatus comprising a hollow frame defined by elongate boundary members and divided into discrete sections by at least
40 one elongate member of a shape which in cross-section increases progressively from the base to the top thereof, the arrangement being such that settable material can be cast into the frame sections with the frame located
45 on a ground surface to create in situ a paved area.

The at least one elongate member is preferably substantially "V" shape in cross-section.

The frame may suitably be manufactured
50 from aluminium, steel or plastics. A plurality of dividing members may be provided within the frame to create a pattern of cast segments.

One or more spirit levels or the like may be
55 permanently or separably mounted on or within one or more of the elongate boundary or dividing members of the hollow frame.

According to the present invention in another aspect, there is provided a method of
60 creating in situ on a ground surface a paved area, the method comprising the steps of casting a relatively dry-mix of settable material such as concrete, cement or the like into open ended sections defined within a frame laid
65 onto the ground surface to be paved and divided

into a plurality of discrete sections by one or more elongate members of generally "V" or similar shaped cross-section and lifting the frame to leave the segmented dry-mix cast material on the ground.

The invention will now be described by way of example with reference to the accompanying diagrammatic drawings in which:

Figure 1 is a plan view from below of apparatus in accordance with the invention;

Figure 2 is a side view of the apparatus illustrated in Figure 1; and

Figure 3 is a side elevational view in perspective of the apparatus illustrated in Figures 2 and 1.

The apparatus illustrated in the drawings comprises a casting frame 1 including side and end elongate boundary members 2 and three elongate dividing members 3 which span the width of the frame. Each dividing member 3 is substantially "V" shaped in cross-section and the inwardly facing sides of the boundary members 2 slope downwardly and outwardly in a sense to define one sloping side of a
90 "V" shape. The dividing members 3 may be permanently or removably located within the frame 1. Thus, the members 3 may be welded at their ends to the boundary members 2; alternatively the members 3 may be
95 removably attached to the frame by means of screws, adjustable clamps or the like which act to secure the dividing members to the boundary members. Other known methods of permanently or removably connecting the dividing members to the boundary members of the frame may be employed.

A spirit level 4 is mounted within a recess set in the surface of one dividing member 3. Additional levels 4 may be provided, these being mounted horizontally or vertically as required.

It is to be understood that the particular arrangement illustrated in the drawings is merely exemplary of one embodiment of the invention. Thus a significant number of frame configurations can be employed to achieve a variety of patterns using a variety of straight or curved dividing members each of substantially "V" or the like cross-section. Thus, any
115 cross-section which progressively increases in width from the base to the top thereof could be employed.

In use, the frame 1 is placed upon a generally flat ground surface to be paved and the open sections of the frame are filled with a moist screed of, for example, sharp sand and cement or concrete. The surface is then floated or trowelled to produce a smooth or patterned surface finish. Once all of the sections have been filled, the frame is simply
120 lifted from both ends and placed onto the ground close to the paving that has previously been laid. Because of the "V" shaped section of each of the dividing members and the sloping sides of the boundary members, the frame
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can be removed without disturbing the relatively drymix cement or concrete. With a relatively dry or moist-mix screed, the frame can be lifted immediately after casting and before

5 setting of the concrete or cement.

By suitable selection of the frame divisions and/or by casting different coloured cements within individual sections of the frame, a pleasing paving pattern for, for example, a

10 patio can be achieved without the need for careful levelling of a ground surface. Casting in situ also removes the need to transport and carry large numbers of paving slabs. When using the frame, levelling can simply be

15 achieved by means of a spirit level laid between already cast sections and the frame into which a new section is about to be cast.

Once the cement or concrete cast by means of the frame has set, the separating "V"

20 shaped channels between adjacent segments can be filled using a suitable mortar.

It is to be understood that the apparatus described above is merely exemplary of apparatus and methods in accordance with the invention and that numerous modifications can be made thereto without departing from the true scope of the invention. Thus, whereas the term "substantially "V" shaped cross-section" has been used to describe the configuration of the dividing members 3, similar shapes (e.g. a "U" shape) may be employed, the only criteria being that the members can be removed upwardly without disturbing cement or concrete cast into the frame.

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CLAIMS

1. Apparatus for applying a settable material such as cement, concrete or the like to a surface to create in situ on that surface a

40 paved area consisting of a plurality of shaped segments each spaced on at least its upper surface from neighbouring segments by a channel whose area increases progressively from the base to the top thereof and into

45 which mortar may subsequently be applied, the apparatus comprising a hollow frame defined by elongate boundary members and divided into discrete sections by at least one elongate member of a shape which in cross-section increases progressively from the base to the top thereof, the arrangement being such that settable material can be cast into the frame sections with the frame located on a ground surface to create in situ a paved

50 area.

2. Apparatus as claimed in claim 1 wherein th at least one elongate member is of substantially "V" shape in cr ss-section.

3. Apparatus as claimed in claim 1 or claim

60 2 wherein the frame is manufactured from aluminium, steel or plastics.

4. Apparatus as claimed in any one of claims 1 to 3 wherein a plurality of dividing members is provided within the frame to create a pattern of cast segments.

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5. Apparatus as claimed in any one of the preceeding claims wherein a level detecting device is permanently or separably mounted on or within one elongate boundary or dividing member of the hollow frame.

6. A method of creating in situ on a ground surface a paved area, the method comprising the steps of casting a relatively dry-mix of settable material such as concrete, cement or the like into open ended sections defined within a frame laid onto the ground surface to be paved and divided into a plurality of discrete sections by one or more elongate members of generally "V" shaped cross-section and lifting the frame to leave the segmented dry-mix cast material on the ground.

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7. Apparatus for applying a settable material substantially as herein described with reference to Figures 1 to 3 of the accompanying drawings.

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8. A method of applying a settable material substantially as herein described.

Printed for Her Majesty's Stationery Office
by Burgess & Son (Abingdon) Ltd, Dd 8991685, 1987.
Published at The Patent Office, 25 Southampton Buildings,
London, WC2A 1AY, from which copies may be obtained.